BIOCHEMISTRY
Canterbury
Kent is one of the UK’s leading universities. All of our academic schools produce world-class research, and Kent is rated as internationally excellent, leading the way in many fields of study.

World-leading research
The School of Biosciences at Kent ranks among the most active in biological sciences in the UK, with research funding of around £2.5 million per year. Outside bodies have commended the School for its research, which is acknowledged to attain international levels of excellence.

Biochemistry deals with the way that living organisms function at the molecular level. It is an expanding subject in which rapid technological advances will have a great impact on health, economic, social and environmental issues, and our degree programmes reflect this diversity. The research in the School is focused on understanding systems and processes in the living cell. It has a molecular focus and crosses disciplines from biochemistry to microbiology and biomedical science.

Our research feeds directly into our teaching, providing exciting and relevant final-year projects, well-equipped and well-resourced laboratories, ensuring that you learn the most up-to-date science possible.

Passionate teaching
The School of Biosciences was awarded the maximum score of 24 from the Quality Assurance Agency for Higher Education, achieving full marks in areas such as the design and delivery of teaching materials, and the support and guidance we give our students. The assessors concluded that the School offers ‘well-designed, flexible and coherent degree pathways, taught by dedicated and enthusiastic staff, well-matched to the syllabus and clearly informed by industry and research’.

This reputation for teaching excellence is reflected in the National Student Survey. For example, in Biochemistry, Kent has been rated as one of the top 10 universities in England and Wales in three of the last five years for overall course satisfaction. In the most recent survey (2013), 93% of our biochemistry students reported that they were satisfied with their course.

The School also has a reputation for innovation. One of our academics, Dr Dan Lloyd, has won a National Teaching Fellowship Award for his work on the School’s communication projects (see p17). These projects enable our science students to give talks in local schools and explain science to the public. The School has also received several awards from the University and Kent’s student union, the most recent to Dr Peter Klappa for ‘fantastic feedback’ (2013).

Supportive community
Teaching methods include lectures, lab classes and work in small groups (via tutorials, workshops and problem-solving sessions). We also use some self-learning packages.
We offer Summer Vacation Studentships, giving you the possibility of applying for a paid eight-week research project in one of the School’s research labs during the summer vacation after your second year. The studentships are optional and do not contribute to your final degree result, but they provide an ideal opportunity to experience the excitement of research first-hand and to gain valuable skills that will be useful to you when seeking employment or further study at the end of your degree. In 2013, eight of our students joined the international iGEM project as their Summer Studentship (www.igem.org/about) and were awarded a bronze medal for their work. Our Summer Studentships are funded in part from money given to us by our alumni (The Stacey Fund) and all of our students are eligible to apply.

A successful future
We have excellent links with employers and can offer you support in applying for a sandwich year, which gives you the opportunity to earn a salary for a year, gain relevant work experience, and enhance your employment prospects. See p14 for details.

For more information on the careers help we provide at Kent, see p8 or visit our employability webpage at www.kent.ac.uk/employability.

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Professional recognition
All of our biochemistry degrees are recognised by the Society of Biology (SoB), and our four-year Biochemistry with a Sandwich Year degree has full SoB accreditation. Accreditation is only available for degrees with a substantial period of professional practice (eg a 12-month placement in an industrial lab); however, our standard three-year biochemistry degree is identical in content except for the sandwich year. More information about SoB accreditation can be found on the Society’s website (www.societyofbiology.org/students).
DID YOU KNOW?
Canterbury is consistently rated as one of the safest university cities in England in *The Complete University Guide*. 
SUPERB STUDENT EXPERIENCE

Based on a scenic campus, you have the use of modern teaching labs, with state-of-the-art technology.

World-class study facilities
The £1 million bioscience teaching laboratories ensure that you have an excellent environment in which to develop your practical skills. The School of Biosciences attracts a large research budget, which allows us to provide excellent research labs. If you choose to do laboratory research as part of your final-year project (see p17), you will work alongside our world-class research scientists, using the same high-level technology.

In 2013, over £2 million was spent upgrading the interior of the School and this refurbishment work will now progress to the outside of the building.

Academic facilities on campus are excellent. The Templeman Library has extensive print and electronic collections specifically aimed at supporting the subject areas taught at Kent. Electronic resources include e-journals, e-books, databases, reference resources and newspaper archives. There are also a range of study support services for help and advice.

Thriving scientific community
The School often collaborates with research groups throughout the UK and Europe, and within industry.

It has excellent links with local employers such as GlaxoSmithKline, MedImmune, Eli Lilly and Lonza.

Friendly campus
The campus is built on 300 acres of parkland, overlooking Canterbury. Modern buildings are surrounded by open green spaces, courtyard, gardens, ponds and woodland. It is self-contained and all the main facilities are within walking distance.

The campus facilities include: a sports centre, cinema, theatre, concert hall, nightclub, restaurants, cafés, bars, medical centre, pharmacy, off-licence, shop, banks and laundry facilities. Many students comment on the friendly atmosphere at Kent, which allows you to make friends from all over the world.

Beautiful location
Canterbury city centre is only a 25-minute walk or a short bus-ride from the centre of campus. It's a beautiful city with many stunning medieval buildings and also has lively bars, pubs, restaurants and cafés, as well as a wide range of shops, from small independent outlets to high street chains. The attractive coastal town of Whitstable is close by and there are sandy beaches further along the coast.

A European university
Kent has a diverse cosmopolitan student population with 149 nationalities represented on campus – 27% of students come from overseas. We have strong links with universities in Europe and Kent is only around two hours by train from Paris and Brussels, with London just under an hour away by high-speed train.
Stephanie Bourgeois is in the final year of her Biochemistry with a Sandwich Year degree.

Why did you choose Kent?
I started my studies at Kent in the second year, having spent a year at medical school in France. I came to a biotechnology summer school at Kent and was so impressed with the campus and the facilities that I decided to apply to study here.

How is the course going?
I like the approach to teaching here; academics are happy to answer questions and to interact with students. Often in lectures, the biochemists, bioscientists and biology students are mixed, which is a good thing because we all have our own areas of specialisation so we can help each other. I find the lectures very motivational, they pique your curiosity and for me the exciting bit is going to the library and pursuing the things you are interested in, not just for work or study but for my own pleasure.

I am interested in how enzymes affect the human body and would eventually like to work in drug design. I have taken modules on physiology, biological membranes, protein structure and function, and endocrinology. I also enjoyed studying bioinformatics – my year in industry showed me how important technology is for bioscientists.

What about the lecturers?
You get to know your lecturers well and as you move through the course they are able to guide you towards projects, ideas or career paths that they think you will like.

Tell us about your year in industry.
I worked in Rutherford Appleton Laboratory (RAL), operated by the Science & Technology Facilities Council, as a cell imaging biologist. I had to manage my own lab and assist the researchers who came to use the equipment; I also took care of cell cultures when they were needed. I enjoyed working with high-tech instruments such as the high-power lasers, which enhance medical and cell imaging. It was also good to work with lots of different research groups, knowing that you were helping them to advance their work. I also learnt a lot about the administrative side of lab work and had to make sure the lab was up to the standards required by safety inspectors. The amount I learnt over the year was mind-boggling!

Has it had an impact on what you want to do next?
Definitely, I would like eventually to get a PhD studentship – most of my colleagues at RAL were PhD students or post-docs. After that I may stay in academia or move into the commercial world.

What do you think of the social life at the University?
I think Kent is probably the most social campus anywhere! I literally live in the library café. There is plenty to do and lots of societies, I am in the Kickboxing Society; I also did Salsa but had to give that up because I was so busy with everything else. Through the societies I have made friends from different courses and when we meet I describe my assignments and they describe theirs and we try to decide who should be more worried.

I am French, so Kent’s location is great for me; getting to France is very easy from here. Canterbury is a cultural city, with everything you need from restaurants to student nightclubs and the very British independent shops that I really love. London is also easy to get to.

What advice would you give to someone coming to Kent?
It’s a lovely campus and a good university and the lecturers are excellent. For my course the facilities are fantastic, it is very high tech and up-to-date, so you become familiar with the kind of equipment you will be using in the workplace. I feel very lucky that as an undergraduate I have access to such fantastic facilities.

Any advice for other international students?
Enjoy it and join every single society in your first year! People at Kent are very friendly and you can mix with people from all over the world, so be open and don’t just socialise with people from your own country. Explore England, go to festivals – that is a very English thing to do. There is lots of help for international students as well as special events to help you settle in. Enjoy yourself.
Kent equips you with essential skills to give you a competitive advantage when it comes to getting a job. Your employment prospects after leaving Kent are excellent. Six months after graduation in 2013, only 6% of Kent graduates were without a job or a further study opportunity.

Master key skills
As well as providing a first-rate academic experience, we want you to be in a good position to face the demands of a tough economic environment. Nowadays, employers are looking for a range of key transferable skills and you are encouraged to develop these within your degree programme. Dealing with challenging ideas, thinking critically, the ability to write well and present your ideas clearly are all important skills that you gain at Kent.

Common career paths
From the School of Biosciences, about a third of our graduates go straight into laboratory work in hospital, industrial or university labs. Typical specialisms include molecular biology, biotechnology, immunochemistry, microbiology, pharmacology and structural biology.

Another third of our graduates go on to become senior research scientists – a role that allows them to work at the cutting edge of scientific exploration. The most common route is to gain an MSc in a more specialised area or a PhD by joining an established research group. Most students receive full funding to support their scientific work while studying for a PhD.

The remaining third of our graduates go on to work in other areas. The skills you gain in your studies are useful in a range of careers. In recent years, students have found employment in teaching, scientific publishing, marketing, sales, banking, accountancy, police and social work. A good degree result can also qualify you to train in medicine or the veterinary profession.

Professional experience
Students who choose to take a sandwich year (see p14) often find this extra experience enhances their job prospects. They gain work experience, insight into the professional pathways available, and useful skills. A year abroad can also provide valuable experience and an additional opportunity for personal development.

A large number of our students also develop professional skills and gain hands-on experience through Kent’s wide range of voluntary work opportunities. We also offer Summer Vacation Studentships, which are paid positions in the School, available during the summer after your second year (see p3 for more information).

Careers advice
The Careers and Employability Service can give you guidance in areas such as how to choose your future career, how to apply for jobs, how to write a good CV and how to perform well in interviews and aptitude tests. It also provides up-to-date information on graduate opportunities, before and after you graduate. For more details, go to www.kent.ac.uk/employability
Rosanna Davies studied Biochemistry with a Sandwich Year and graduated in 2010. She now works for Cairn Research in Faversham.

What attracted you to Kent and to this particular programme?
Although the University is close to where I grew up, this was not my main motivation in choosing Kent. I chose it for a number of reasons: it had newly built laboratories; the School of Biosciences had good league table ratings; the modules looked very interesting and there was an element of choice – and I had a positive experience at the Open Day.

How were your studies?
I enjoyed the fact that a lot of our lecturers were active researchers and would sometimes include their current studies in the lecture material. There was also a good balance between lectures and lab work. The final-year project was a great opportunity to put your previous lab work/theoretical knowledge into practice and encouraged independent thinking.

What did you think of the teaching at Kent?
Lecturers clearly had a deep interest in their subject area, which came across in the teaching.

How do you think your course has changed you?
University was a big step up from school where all the information is handed to you. During my degree, it was vital that I learned time management, working within a group to discuss the work/gain a better understanding and also independent reading. Just going to the lectures wasn’t enough as I was aiming for a first – I had to read around the subject to gain a better overall knowledge of the systems and processes – something I enjoyed doing as it was always good to fill in the gaps and get answers to the parts I was unsure about.

How did you enjoy your time at Kent in general?
I enjoyed both my time on campus and off. I made friends on my course, with my housemates and through societies, particularly the Kendo club. I particularly enjoyed our society social events.

What careers advice did you receive at Kent?
I knew there was a careers advice service but I didn’t make use of this. While looking around for my year in industry I got a good idea of the jobs available. We also had a lecture that showed the career paths of previous biosciences graduates, which was very useful.

In what way has your degree helped you find work?
As soon as I graduated I was offered an internship at Cairn Research in Faversham. I believe that my year in industry placement helped me a lot as it showed that I managed well in the working world and was used to its demands. I have been at Cairn ever since I graduated and have no plans to leave. I have learnt a lot about the industry behind the scientific research and I keep up-to-date with current research.

Is there anything else you would like to pass on to prospective students?
Work hard, play hard! University is a great experience both academically and socially, so make the most of both sides.
Choosing your programme

Not sure which programme to choose? Here’s a quick guide to the degrees on offer within the School of Biosciences.

The following degrees are available in biochemistry:

**Biochemistry**

Biochemistry deals with the way living organisms function at the molecular level. How do living organisms work? How are they built, controlled, repaired and supplied with energy? Biochemistry is an ideal degree if you want to enter a research career in a life sciences area. The degree is taken over three years, full-time.

**Biochemistry with a Sandwich Year**

This degree is a four-year full-time course with a paid work placement (sandwich year) between the second and final year of study. The sandwich year is suitable for students who have a good level of achievement at Stage 1.

For international students, holding a student visa entitles you to work in the UK as long as you are still registered as a full-time student. This means that you can take a sandwich year as this is a fully registered part of your degree.

**Biochemistry with a Year Abroad**

This four-year full-time programme allows you to spend a year abroad between your second and final year, giving you a fantastic opportunity to immerse yourself in another culture.

All our year abroad exchanges are with universities where the teaching is in English, so you do not need a foreign language qualification to take this option. Currently, we have exchanges with over 20 universities in North America, and in the Netherlands (Amsterdam), Turkey (Istanbul), Hong Kong, Australia and Malaysia. The subjects you study during your year abroad complement your programme at Kent and the extra year allows you to study a wider range of topics than is possible on a three-year degree course.

An alternative way to experience a new culture is to apply for a sandwich year (see p14) in a different country.

**Other degree programmes**

The following degrees are also available within the School:

**Biology**

Biology is the study of living organisms and their interactions with the environment. The subject includes socially relevant topics, such as the use of genetically modified organisms, stem-cell research and human fertility.

**Biomedical Science**

Biomedical Science at Kent explores the biochemical processes that occur in the human body, and human diseases such as cancer and the body’s response to infection. It offers graduates a chance to put scientific knowledge into practical use within the NHS, the pharmaceutical industry or medical research. Our Biomedical Science degrees are accredited by the Institute of Biomedical Science.

**International students**

If you are applying from outside the UK without the necessary English language qualifications, you may be able to take the Kent International Foundation Programme. You will need strong results in your national school-leaving qualifications in biology and chemistry, which will be assessed on an individual basis. For more details, see www.kent.ac.uk/international-pathways/ifp

**Need more information?**

For more information on Biology or Biomedical Sciences, see www.kent.ac.uk/ug
STUDYING AT STAGE 1

Stage 1 is the first year of your degree programme. First-year modules provide a broad survey of the various biological and chemical disciplines, including biochemistry, cell and molecular biology, microbiology and physiology.

Teaching is via lectures, supervisions, tutorials and laboratory classes. Each module involves, on average, 24 hours of lectures, three one-hour supervisions as well as practical laboratory sessions.

Most Stage 1 modules are assessed by 50% coursework and 50% examination. At Stage 1, you need to reach a satisfactory standard to move on to the second year. However, no Stage 1 marks are carried forward to your final degree result.

There are seven compulsory modules:
- Biological Chemistry B (double module)
- Enzymes and Introduction to Metabolism
- Genetics and Evolution
- Human Physiology and Disease
- Introduction to Biochemistry
- Molecular and Cellular Biology 1
- Skills for Bioscientists.

Modules: Stage 1

Biological Chemistry B
The principles of chemistry are an essential foundation for biochemistry. Building up from the atomic level, this module introduces periodicity, functional groups, compounds and chemical bonding, molecular forces, molecular shape and isomerism, and chemical reactions and equilibria, enabling you to understand the importance of organic chemistry in a biological context.

Enzymes and Introduction to Metabolism
The module introduces you to metabolic pathways and the control of metabolism by changes in enzyme activity. It includes the rates of biological processes and the theoretical principles underlying them, the basic structure and function of enzymes and their kinetics. You perform enzyme assays to determine their kinetic properties and also study the key pathways of metabolism in animals and their control mechanisms.

Genetics and Evolution
Covering the basics of Mendelian genetics to the role of DNA, this module explores the historical views on evolution, the action of DNA, population genetics and speciation. You gain an understanding of Mendelian inheritance and the ability to predict the outcomes of mono- and dihybrid crossbreeding, as well as an insight into Darwin’s observations on the role of genetics in evolution.

Human Physiology and Disease
This module looks at the anatomy and function of normal tissues, organs and systems and their diseases. You consider the manifestation of various conditions at the level of cells, tissues and the whole patient, and discuss diagnosis, available prognostic indicators and treatments.

Introduction to Biochemistry
An introduction to biomolecules in living matter. This module contrasts the simplicity of the basic building blocks of macromolecules (amino acids, sugars, fatty acids and nucleotides) with the enormous variety and adaptability of the different macromolecules they form (proteins, carbohydrates, lipids and DNA).

Molecular and Cellular Biology 1
Here, you discover the key themes and techniques in molecular biology, genetics and eukaryotic cell biology. The module covers basic cell structure, the principles of the cell cycle and cell division, the control of living processes by genetic mechanisms, and techniques for genetic manipulation.

Skills for Bioscientists
In this module, you are introduced to the practical skills, the analysis and presentation of biological data as well as basic mathematical and statistical skills. You also look at the computer network and its applications and cover essential skills such as note-taking and essay writing.
STUDYING AT STAGE 2

Stage 2 is the second year of your degree programme and your marks contribute towards the final grade of your degree. You develop the concepts previously covered by looking at the study of gene regulation, cell biology and metabolism.

There are seven compulsory modules:
- Cell Biology
- Gene Expression and its Control
- Infection and Immunity
- Metabolism and Metabolic Disease
- Metabolism and Metabolic Regulation
- Physiology
- Skills for Bioscientists 2.

You also take one of the following:
- Animal Form and Function
- Microbial Physiology and Genetics 1
- Pharmacology.

Modules: Stage 2

Cell Biology
Reviewing the experimental approaches used to investigate the biology of the cell, this module highlights the similarities and differences between cells of complex multicellular organisms and microbial cells. Initially, it considers the functions of the cytoskeleton and cellular compartments such as the nucleus. Later in the module, you examine the mechanisms by which newly synthesised proteins are secreted or shuttled to their appropriate cellular compartments.

Gene Expression and its Control
This module deals with the molecular mechanisms of gene expression and its regulation in prokaryotes and eukaryotes. This involves descriptions of how genetic information flows from DNA to RNA to protein, how this flow is controlled in specific tissues and cells throughout development and how it is disrupted in cancer cells.

Infection and Immunity
Here, you gain an understanding of the major diseases of infectious origin that colonise human body tissues. You cover the principles of epidemiology and look at medically important diseases such as the HIV virus and Aids. You study the features and functions of immune cells and molecules used in the defence of the body against invading microorganisms.

Metabolism and Metabolic Disease
This module describes how errors in metabolic processes result in the development of human diseases such as phenylketonuria, gout, hypercholesterolemia, diabetes and porphyria.
Skills for Bioscientists 2
In this module, you develop key skills in undertaking and communicating science. Focused around ‘mini-project’ work, you are introduced to new techniques and also planning and designing your own experiments for a short three-day project. You submit your work through an oral presentation and a project report. You develop skills in essay writing, report writing and in addition, there are presentations on careers to help you start thinking about your future options.

Metabolism and Metabolic Regulation
This module describes the integration of the many chemical reactions underpinning the function of cells. For example, how cells make ATP and use it to drive cellular activities, and how plant cells harvest energy from the sun in the process of photosynthesis.

Physiology
Developing a detailed understanding of particular physiological systems, this module relates these systems to relevant disease processes and their detection. The role of research and laboratory methods in understanding human disease is also introduced.

Animal Form and Function
You study the diversity of animal life throughout evolution, including elements of functional anatomy and physiology, such as circulation and gaseous exchange, the digestive system, the nervous system and reproduction.

Microbial Physiology and Genetics 1
This module includes a review of the structure and biosynthesis of bacterial and fungal cells, their key metabolic processes and their quest for food. You also study microbial growth, genome organisation and structure and mechanisms of DNA transfer.

Pharmacology
Here, you are introduced to the major concepts underpinning pharmacology – the study of drugs and their actions in cells, tissues and whole animals. You learn to describe the effects of drugs in cells and to relate the mechanism of drug action to their therapeutic intervention in disease.

DID YOU KNOW?
In The Guardian University Guide 2014 93% of Biosciences students were satisfied with the quality of their course.
WORK EXPERIENCE: 
THE SANDWICH YEAR

If you choose to do a sandwich year, it comes between Stages 2 and 3.

Excellent links with employers
In the past, our students have taken placements with employers such as GlaxoSmithKline, MedImmune, Procter & Gamble, Eli Lilly and Lonza. The School has established excellent links with these employers, as well as many others.

Finding a placement
Work placements are usually advertised nationally and students apply by sending in a CV or application form. We guide you through the process, giving you valuable feedback on the placements that are likely to enhance your career prospects, and show you how to write a winning CV and hone your interview skills.

Salary and benefits
Students usually work on placement for the entire calendar year. Salary and holiday entitlements vary according to the employer for which you work. However, many students find that they earn enough to be able to save some of their income, and this often helps them in their final year of studying at Kent.

In general, the sandwich year is very popular with employers, because of the skills you gain in the workplace. If your placement is a success, you may even be offered a job with the same employer after graduation.

Keeping in touch with Kent
Your tutor maintains close contact with you during your year away from the University, checking on your progress and paying a visit to your workplace. All placement students come back to campus for a day halfway through the year to talk about their work with other students and staff. At the end of the sandwich year, your work is assessed by a presentation and written report and these contribute 10% to your overall degree mark.

DID YOU KNOW?
Kent is one of the first universities within the UK to have degree programmes accredited by the Society of Biology.
STUDYING AT STAGE 3

Stage 3 is the final year of your degree programme. In addition to your compulsory modules, you also complete a Research Project that counts for a quarter of your marks at Stage 3.

All students take the following compulsory modules:
- Biological Membranes
- Cellular Communication
- Proteins: Structure and Function (double module)
- Research Project.

You also take one of the following:
- Advanced Immunology
- Bioinformatics and Genomics
- Cancer Biology
- The Cell Cycle
- Frontiers in Oncology
- Integrated Endocrinology and Metabolism
- Magnetic Resonance in Biosciences and Medicine
- Neuroscience.

Modules: Stage 3

Biological Membranes
All cells and subcellular compartments are separated from the external milieu by lipid membranes, with protein molecules inserted into the lipid layer. The structure and function of these two components are diverse, ranging from selective translocation of molecules, regulatory functions and maintaining the structure of the cell. This module deals with aspects of each of these roles.

Cellular Communication
This module provides an introduction to the nervous and endocrine systems of the body and their role in intercellular communication. It also introduces intracellular signalling systems – including the role of signal transducers, second messengers, and the regulation of cell function by protein phosphorylation.

Proteins: Structure and Function
You investigate the structural organisation of proteins and how protein structure relates to function. You cover topics including enzyme catalysis, ligand binding, protein folding, and protein engineering. You also learn about the major biophysical techniques that underpin these studies (eg fluorescence, mass spectrometry, X-ray crystallography and NMR).

Research Project
You work independently on a research project, but have regular meetings with a supervisor who guides you through the process and provides advice and support. Your supervisor will be an academic whose research interests are related to your topic. See p17 for more details.

Advanced Immunology
Since the discovery of HIV, astonishing progress has been made in our understanding of how the immune system functions. This module reviews topical aspects of this subject, placing emphasis on the regulation of the immune response, as well as the role of dysfunctional immune systems in a variety of diseased states.

Bioinformatics and Genomics
The past decade has seen a massive increase in protein structure and genome sequence
information. This module investigates how modelling can be used to predict protein function and how genetic variants identified in the genome sequences can be analysed for their ability to cause disease. Lectures teach you the theory and the bioinformatics analyses are carried out in computer workshops.

**Cancer Biology**

In this module, you explore the molecular basis of cancer and how this knowledge may be used to develop new therapeutic strategies to tackle the disease in its variety of forms. Topics include the regulation of gene expression, the role of growth factor signalling, cancer stem cells, cell apoptosis, chemoresistance, cell metastasis, tumour immunology, and targeted cancer therapies and clinical trial design.

**The Cell Cycle**

The precise regulation of the cell cycle is essential for all life. In this module, you explore how the current understanding of cellular reproduction emerged, with initial lectures describing the important breakthroughs in cell cycle research. You go on to study the key events that occur and how they are regulated by mechanisms conserved from yeast to man.

**Frontiers in Oncology**

You are introduced to the basic principles of cancer biology and cancer therapy. The module explains the characteristics of cancer and why the development of more effective anti-cancer therapies is so extremely challenging. The module includes interactive discussions on a number of recent scientific publications that highlight the important issues in cancer research today.

**Integrated Endocrinology and Metabolism**

This module focuses on the endocrine system, one of the two great control systems of the body. In conjunction with the nervous system, these two regulatory systems are responsible for monitoring changes in an animal’s internal and external environments and directing the body to make any necessary adjustments to its activities so that it adapts itself to these environmental changes.

**Magnetic Resonance in Biosciences and Medicine**

This module provides a basic understanding of magnetic resonance as used in NMR and MRI, and how these two techniques have been used in research and medicine. The first section introduces the use of NMR to study proteins, peptides, nucleic acids, carbohydrates, lipids and metabolites, while the second section looks at the use of MRI in imaging, including functional MRI used to study brain activity in patients with stroke, head injury or neurodegenerative disease such as Alzheimer’s.

**Neuroscience**

The molecular and cellular basis of the development of the nervous system from a simple sheet of neuroepithelial cells is discussed. You go on to investigate the molecules and mechanisms involved in the transmission of signals between nerve cells. Finally, you explore how the nervous system controls a variety of behaviours such as learning, memory, sleep and dreaming.
YOUR FINAL-YEAR RESEARCH PROJECT

In your final year of study (Stage 3), you complete the eight-week Research Project. You choose a project that interests you from a wide range of options.

There are three types of project on offer – a laboratory-based project, a literature and data analysis project, or a communication project. If you choose a laboratory-based project, you will often meet and work with other members of your supervisor’s research team and use equipment and facilities in their own research laboratory.

Currently, our research areas include: cancer biology and cancer therapies, bioprocessing and the development of novel therapeutics, genetic and prion diseases, reproductive medicine, synthetic biology, protein folding and structural biology, the biology of ageing, molecular motors, and bacterial and viral pathogenesis and sensing.

Laboratory-based project

Laboratory projects are offered in all of the research areas of the school and involve techniques such as cell culture, gene cloning, PCR, microscopy, spectroscopy, recombinant protein expression, assay development, and so on. You carry out real research of interest to your supervisor and their research group. You may even have your work published in scientific journals.

Recent student projects include:
• Novel single-chain antibodies for the treatment of cancer
• Engineering mammalian cells to produce larger yields of recombinant therapeutic protein ‘bio-drugs’ more efficiently and at lower cost
• Assessment of mitochondrial DNA loss in response to stress during the process of ageing
• Synthetic biology and metabolic engineering of biological processes.

Literature and data analysis project

A literature and data analysis project gives you the opportunity to really dig deep into the scientific literature to fully understand an area of research, including the analysis of published (or in some cases unpublished) data. The topic will be one that is of interest to your supervisor, who will initially direct you to exciting papers and discuss your findings and ideas with you on a regular basis.

Recent student projects include the following:
• What do telomeres have to do with ageing and disease?
• Mitochondria as therapeutic targets to extend lifespan
• What approaches could be used to enhance photosynthesis to contribute to the need to ensure future global food security?

Communication project

One of the key challenges facing scientists is to make their work interesting, accessible and relevant to the public. A communication project can develop these key skills and broaden your employment opportunities.

Communication projects are offered in a wide range of topics or you can suggest your own. The topic will often be a poorly understood or controversial area of bioscience and the aim is not only to research the topic and write an up-to-date science report, but also to think about how you can explain your findings to a wider non-scientific audience. Communication students put this into practice by giving a presentation in a local secondary school and by preparing a website or a written article for a newspaper or magazine.

Recent student projects include the following:
• Sleep – a waste of time or an essential behaviour?
• Beyond genetics: how epigenetics controls your life
• Are sugary beverages a threat to global health?
• The evolutionary battle between the human red blood cell and the malaria parasite.

“The students who choose the communication project are reviewing cutting-edge literature. But the additional challenge is to think about how they communicate this to non-scientists.”

Dr Dan Lloyd
Senior Lecturer in Pharmacology
VISIT THE UNIVERSITY

Come along for an Open Day or a UCAS Interview and Visit Day and see for yourself what it is like to be a student at Kent.

Open Days
Kent runs Open Days during the summer and autumn. These provide an excellent opportunity for you to discover what it is like to live and study at the University. You can meet academic staff and current students, find out about our courses and attend subject displays, workshops and informal lectures. We also offer tours around the campus to view our sports facilities, the library, and University accommodation. For further information and details of how to book your place, see www.kent.ac.uk/opendays

UCAS Interview and Visit Days
If you apply to study at Kent and are offered a place, you will usually be sent an invitation to one of our UCAS Visit Days. You can book to attend through your online Kent Applicant Portal. We normally interview all our Biochemistry applicants but will make offers without interview for applicants from outside the UK. The UCAS days include a 15-20 minute informal interview with a member of academic staff, a ‘taster’ lecture about one of the areas of research within the School followed by tours of the campus, School and student accommodation. During the day, there are ample opportunities to talk to our current students or members of staff to discuss any queries you may have. For more details, please see www.kent.ac.uk/visitdays

Informal visits
You are also welcome to make an informal visit to our campuses at any time. The University runs tours of the Canterbury and Medway campuses throughout the year for anyone who is unable to attend an Open Day or UCAS Visit Day. It may also be possible to arrange meetings with academic staff, although we cannot guarantee this. For more details and to book your place, see www.kent.ac.uk/informal

Alternatively, we can provide you with a self-guided tour leaflet, which includes the main points of interest. For more details and to download a self-guided tour, go to www.kent.ac.uk/informal
Scholarships and bursaries
For details of scholarships and bursaries at Kent, please see www.kent.ac.uk/scholarships

On the web
For the latest School information on studying biochemistry at Kent, please see www.kent.ac.uk/bio

More information
If you have any further queries on how to choose your degree, our admissions procedures, how to prepare for your studies or would like information about the University of Kent’s facilities and services, please contact us:
T: +44 (0)1227 827272
Freephone (UK only): 0800 975 3777
www.kent.ac.uk/ug

Location
Canterbury.

Award
BSc (Hons).

Programme Type
Full-time.

Degree programme
Single honours
• Biochemistry (C700)
• Biochemistry with a Sandwich Year (C702)
• Biochemistry with a Year Abroad (C703)

Offer levels
BBB to ABB at A level, IB Diploma 34 points with 16/15 points at Higher including Chemistry and Biology 5 at HL or 6 at SL plus Mathematics 4 at HL or SL.

Required subjects
A level grade B in Chemistry and grade B in either Biology or Human Biology.
GCSE Mathematics grade C.

Sandwich Year/Year Abroad
Students have the chance to undertake a one-year placement away from the University between Stages 2 and 3. See p10 and p14 for details.

Professional Recognition
All of our biochemistry programmes are recognised by the Society of Biology, and Biochemistry with a Sandwich Year has full-accredited status.

International Foundation Programme
Applicants from outside the UK without the necessary English language qualifications may be able to take the Kent International Foundation Programme (C107). See p10 for more details.

Offer levels and entry requirements are subject to change. For the latest course information, see www.kent.ac.uk/ug

Terms and conditions: the University reserves the right to make variations to the content and delivery of courses and other services, or to discontinue courses and other services, if such action is reasonably considered to be necessary. If the University discontinues any course it will endeavour to provide a suitable alternative. To register for a programme of study, all students must agree to abide by the University Regulations (available online at: www.kent.ac.uk/regulations).

Data protection: for administrative, academic and health and safety reasons, the University needs to process information about its students. Full registration as a student of the University is subject to your consent to process such information.
COME AND VISIT US

We hold Open Days at our Canterbury and Medway campuses.
For more information, see: www.kent.ac.uk/opendays